

MARINE CORPS WARFIGHTING LABORATORY

Dragon Fire II:

Building on the successes of the original Dragon Fire automated mortar-firing system, Dragon Fire II is designed as an advanced concept demonstrator to explore digital fire control, networked communications capabilities, and fire on the move. Dragon Fire II will be ready for live-fire testing as a towed-airmobile and LAV self-propelled system during late CY 2005.

Background:

The Dragon Fire experimental system was developed to explore applying automation to an artillery system. It successfully demonstrated that automation could be reliable as well as significantly improve precision and responsiveness. The Dragon Fire was also designed for integration onto a Light Armored Vehicle (LAV) chassis to form a modular artillery system, allowing commanders to tailor artillery mobility to immediate tactical requirements. During testing, the 120mm rifled mortar tube and rifled ammunition proved to be accurate and capable. This tube also permits effective use of standard smoothbore mortar ammunition. Coupled with 6400-mil traverse and computer-controlled aiming, the original Dragon Fire was a very effective weapon; however at 7,000 pounds it was too heavy for many applications. Dragon Fire II was designed to address the shortfalls of the Dragon Fire I design and to apply new technologies and software to the system. Many technologies to be tested in the Dragon Fire II system have direct application to the Expeditionary Fire Support System (EFSS) program spiral development and LAV-EFSS program. The Dragon Fire II is also being tested as a potential dedicated counterfire system for the Counter Rockets, Artillery, and Mortars (C-RAM) project for Iraq and Afghanistan.

Description:

Dragon Fire II utilizes advanced materials and a unique artillery design to lower the overall weight of the system to a planned 4,000 pounds. It uses electric actuators for extremely fast response and increased accuracy in weapon pointing. In the event an automatic system fails, Dragon Fire II has manual backups for continuous mission support. The fire control computer system has been entirely redesigned to use the Army M95 Mortar Fire Control System (MFCS) as its basis, allowing digital communication with the Advanced Field Artillery Tactical Data System (AFATDS) as an artillery system. Dragon Fire II is also designed to fit within the MV-22 Osprey and to be towed by any available military vehicle. Whether it is being employed as a towed weapon or as a self-propelled, LAV-based weapon, Dragon Fire II will be capable of full-time navigation, communication, and networking within the fires coordination system. Any Dragon Fire II is capable of acting as a master system to plan fires, pass safety information with locations and fires coordination measures, and controlling subordinate Dragon Fire II weapons to implement precise, rapid and efficient fire support. One proposed LAV-

Dragon Fire II *fact sheet*

mounted Dragon Fire II version has the Lightweight Countermortar Radar (LCMR) mounted on an extendable mast. This concept will allow very rapid detection of enemy firing systems and equally rapid attack of those firing systems by the Dragon Fire. The first Dragon Fire II is being delivered on 1 September 2005



Benefits of Dragon Fire II:

- Entirely self-contained: on-board fire control computer, communication, navigation, and orientation system. No additional teams or equipment are required to provide effective fire support.
- Modular deployment options for fire support: air deployable as a towed system, yet rapidly transformable to self-propelled LAV system.
- Most precise artillery system: advanced ballistic solution, on-board muzzle velocimeter, precise positioning and aiming.
- Exceptionally responsive: capable of receiving fire mission, aiming, loading, and firing in any direction in 14 seconds or less.
- Capable of firing any current type of rifled and smoothbore 120mm mortar ammunition.
- Has characteristics required for the US Army Counter-Rockets, Artillery, and Mortars (C-RAM) project: speed of reaction, digital communications, networking, precision, and a 6400-mil traverse.
- Potential LAV-EFSS candidate system.

Deliverable Products:

- One Dragon Fire II concept demonstrator system with modified LAV mortar (LAV-M) carrier.
- Advanced fire control and other technologies for transition to the EFSS Program of Record.

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